

# Bald Eagle Management Plan

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Teufel Large Wood Addition, Green River, WA

*Submitted to:*

US Fish and Wildlife Service  
Lacey, WA

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## **Project Description**

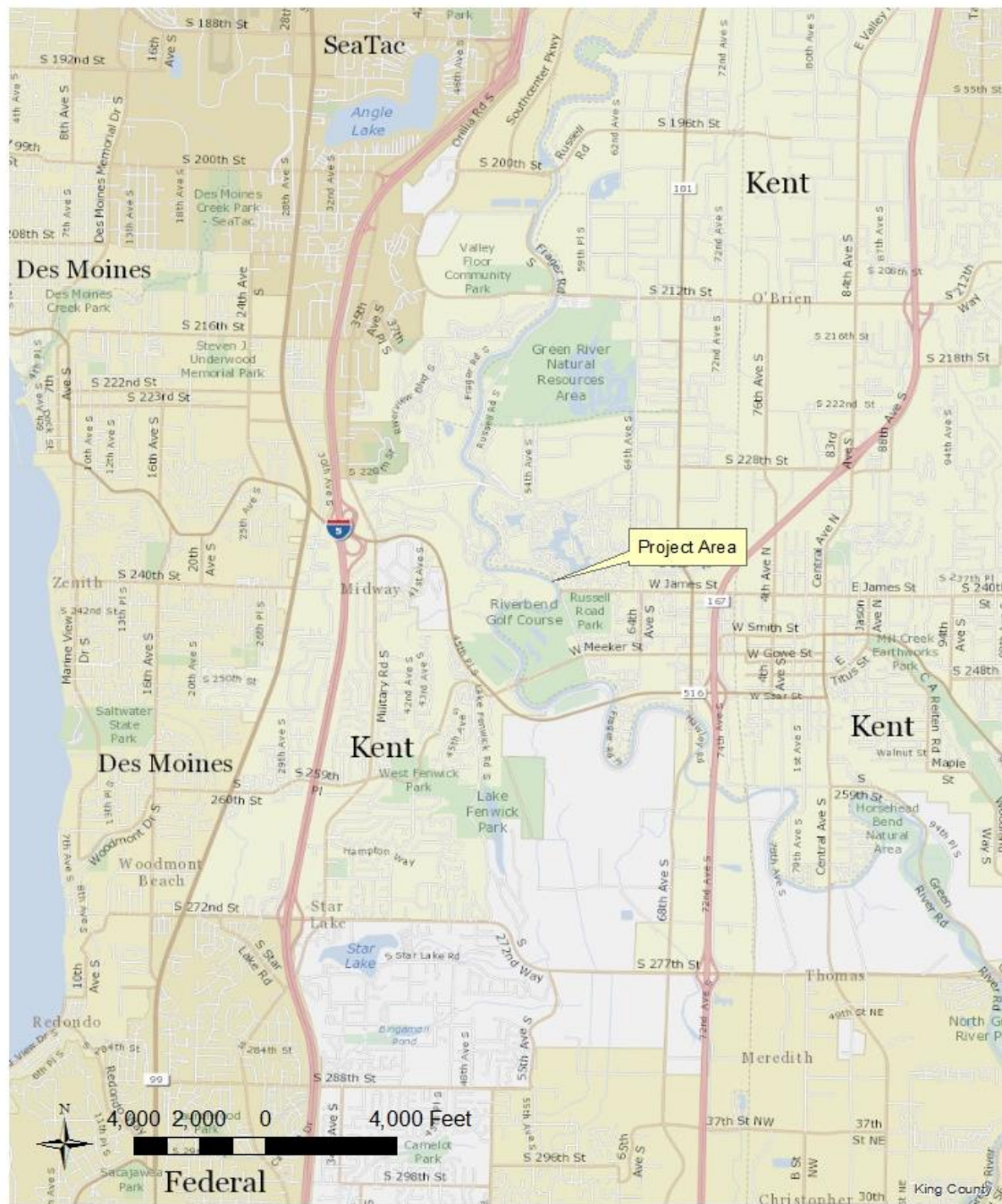
Eighty-five pieces of large wood will be installed along about 350 feet of the left (southwest) bank of the Green River on the inside of a meander bend near River Mile (RM) 20.3, in the City of Kent (Figure 1). Installed wood will be anchored to 46 timber piles installed in the river bed, and will form a continuous log structure that varies in height and width to provide shallow, slow water rearing and refuge habitat for juvenile salmonids over a range of flows during the key January to June rearing and outmigration period for juvenile Chinook salmon. Areas disturbed by construction will be revegetated with native trees and shrubs.

The placed wood is mitigation required by a Hydraulic Project Approval (HPA) permit issued by Washington Department of Fish and Wildlife (WDFW) for previous tree-cutting on levees in other locations in 2009 to conform to PL84-99 levee vegetation management requirements. The wood is intended to mitigate for trees cut on the riverward side of levees by replacing trees that may have fallen into the river. The project is in the permitting process and is scheduled for construction in August 2017.

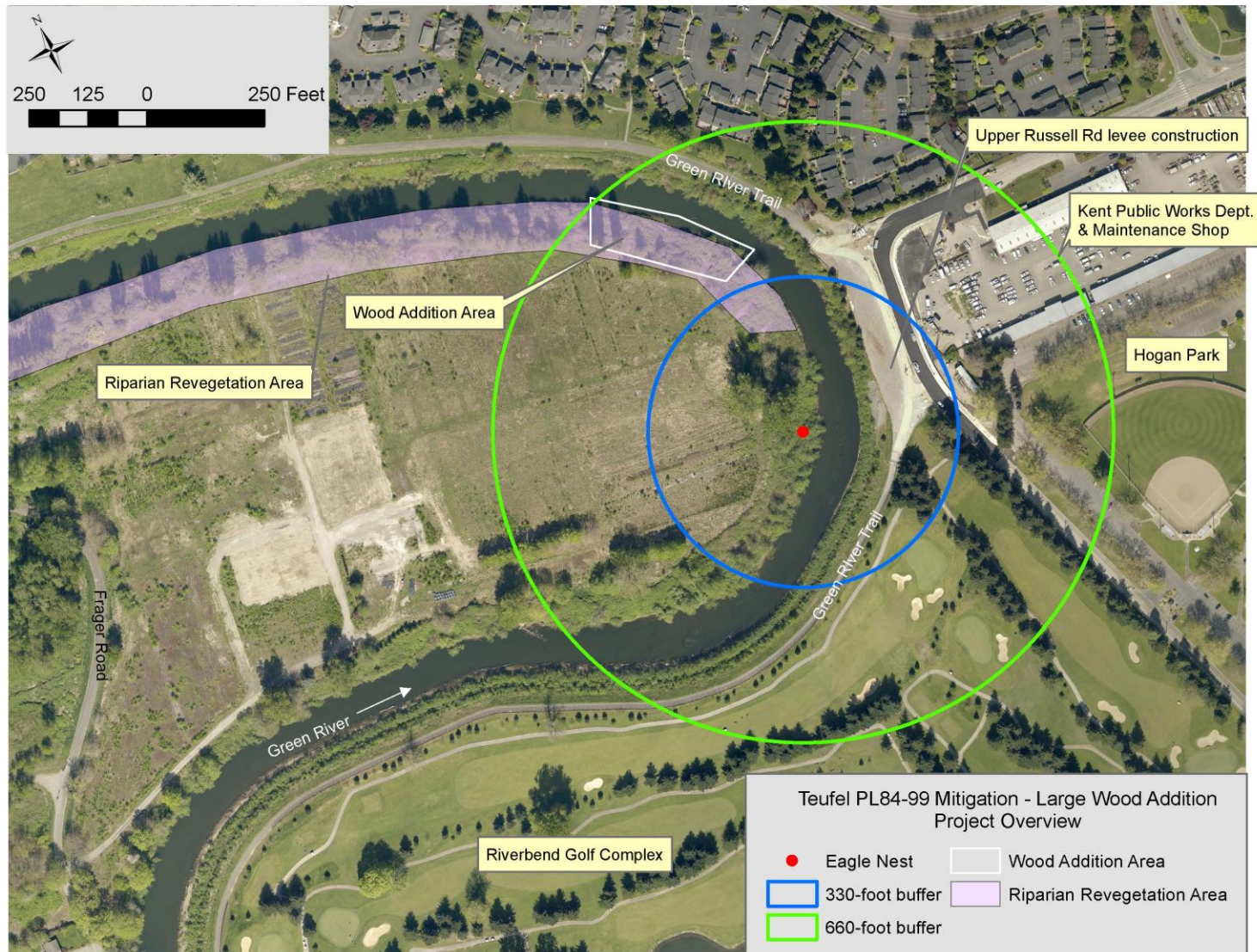
During a later phase of the project, 1,044 native trees will be planted within 150 feet of the river along 2,500 feet of the shoreline to revegetate the riparian corridor as required by the HPA as mitigation for trees cut on the landward side of levees. This planting has been delayed to allow time for additional soil sampling to identify the extent of known dieldrin contamination and possible remediation actions that may be required before planting. Dieldrin is not present in elevated levels in the large wood addition project area so that phase of the mitigation is proceeding as planned.

## **Bald Eagle Nest**

An active bald eagle nest that usually produces two eaglets per year is present a short distance from the project area (Figure 2). A citizens group of eagle enthusiasts monitors the nest, which usually produces two eaglets a year. The eaglets fledged on July 17 and July 22 in 2016. The location of the eagle nest in relation to major project elements is shown in Figure 2; more project details are shown on Figure 3.







**Figure 2.** Location of bald eagle nest and 330 and 660-foot buffers in relation to major project elements and sources of nearby disturbance.



**Figure 3.** Location of access routes, staging areas, and construction sites as they relate to the bald eagle nest and 660-foot construction buffer.



## Existing Conditions

The bald eagle nest is located in a cluster of three large cottonwood trees adjacent to the Green River about 380 feet upstream of the project construction area (Figure 2). The Green River supports Chinook, chum, pink, and coho salmon, plus bull trout, steelhead, and cutthroat trout.

The project property was purchased by King County in 2012 for environmental mitigation and restoration purposes. Before that a commercial nursery operated on the site since at least the 1970s. The property is fenced and gated so the eagle nest is currently exposed to infrequent human visitors via the project property. However, nearby land-use within the 660-foot breeding buffer on adjacent properties creates baseline disturbance that has probably acclimated the eagles to similar activities (Figure 2). This land-use includes:

- The regional Green River Trail, located on the opposite side of the river about 300 feet from the eagle nest, has frequent use by bicyclists, pedestrians, and dog walkers.
- The Kent City Public Works Department and Kent Parks Maintenance Shop are on the opposite bank about 400 feet away from the nest.
- The Riverview Golf Complex is located about 500 feet away from the nest, and a softball field at Hogan Park is located about 800 feet away.
- The City of Kent recently completed construction of the Upper Russell Road secondary containment levee, located directly across the river about 250 to 300 feet away from the eagle nest. Matt Knox, of the City of Kent, obtained an “Eagle Take Associated With But Not The Purpose Of An Activity” permit for this project (permit #MB77540A-1). Construction occurred in 2014, 2015, and 2016 and was clearly visible and audible from the eagle nest.

## Construction Activities

The in-water construction work window designated in the HPA for our project opens on July 1 and closes on August 31. This window has been extended from a usual closure date of August 15 to allow enough time for project construction given possible delays in start time due to unknown eagle fledging timing in 2017.

Construction-related impacts are described below if they occur within the 660-foot buffer around the eagle nest. This buffer derives from the U.S. Fish and Wildlife Service’s National Bald Eagle Management Guidelines (2007).

Construction activities within the 660-foot nest buffer include:

- Pre-project clearing and treatment of Himalayan blackberry
- Staging and site preparation

- Mobilizing equipment in the work area
- Isolating the in-water work area with best management practices (BMPs) such as turbidity curtain, straw wattles, or willow bundles
- Constructing a temporary 12-foot wide work bench in the bank to provide access to the work area
- Grading a 12-foot wide bench on the river bed to provide a level base for the habitat structure
- Installing 46 timber piles to a minimum depth of 20 feet using a side-grip vibratory pile driver
- Placing 85 habitat logs plus three deflector logs and anchoring them to the timber piles and each other with high-test steel chains
- Constructing vegetated geogrids to stabilize and vegetate the bank
- Final bank grading and restoring and replanting areas disturbed by construction and staging
- Planting 1,044 trees in the riparian buffer using hand labor (later project phase).

These activities are described in more detail below.

### **Land Clearing**

Brush will be mowed along construction access routes and in the staging areas. Blackberries will be cleared from the project site. Noise-generating equipment will include mowers, chainsaws, chippers, and trucks.

### **Log Habitat Structure Construction**

Forty-six timber piles will be installed in the river using a side-grip vibratory pile driver to minimize noise and concussion during pile installation. Construction will also involve excavation and the placement of large wood, slash (small branches), and native backfill material. The construction site will be isolated from the main flow of the Green River with a turbidity curtain. The work must take place within the in-water work windows established in the Clean Water Act Section 404 Corps permit via Endangered Species Act Section 7 consultation, and the HPA. We estimate that in water work that takes place within the eagle nest buffer will take about 23 10-hour work days (Figure 4). If we assume a 40-hour work week, construction needs to begin no later than July 24 to finish by the expected close of the in-water work window on August 31. Noise-generating equipment will include vibratory pile-driving, excavators, and trucks.

### **Planting and Plant Maintenance**

Native trees, shrubs and groundcover plants will be installed by hand in areas disturbed by construction. Hydroseeding trucks may be used during site stabilization immediately after construction is complete.





**Figure 4.** Construction schedule. The work window (lines 5-14) includes both bald eagle nesting and in-water restrictions. The schedule is based on a 40-hour work week consisting of four 10-hour days.

## Protection and Mitigation Measures

This section describes measures that will be taken to avoid or minimize impacts to the bald eagle nest during the breeding season. The breeding season for bald eagles in the Pacific Northwest typically extends from January through August (Table 1), although eaglets typically fledge by August 1 in western Washington (personal communication with M. Miller, USFWS, 2016). The eaglets in the project area nest fledged on July 17 and July 22 in 2016, providing a general indication of when they may fledge in 2017.

**Table 1.** Chronology of typical reproductive activities of bald eagles in the Pacific Northwest (from USFWS National Bald Eagle Management Guidelines, 2007).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nest building											
	Egg laying/incubation										
	Hatching/rearing young										
					Fledging young						

The eagle nest will be monitored prior to construction to determine if it is active. If active, the nest will be monitored to determine when fledging occurs. We will wait to construct within the 660-foot buffer until after the eaglets have fledged unless fledging has not taken place by July 24. Because the in-water work window for salmonids will close on August 31, and in-water work within the eagle nest buffer is expected to take about 23 10-hour work days, we will need to begin construction no later than July 24 to finish before the fish window closes, unless the contractor works overtime.

## Land Clearing and Log Habitat Structure Construction

Site prep, clearing, and construction of the log habitat structure will be scheduled to occur after the eaglets have fledged to the greatest extent possible. However, if the eaglets have not fledged by July 24, construction will need to begin to allow for the 23 10-hour work days needed for project construction before the in-water work window closes on August 31, assuming a 40-hour work week. Impacts from pile driving are being minimized across the entire project area by using a side-grip vibratory pile driver instead of an impact pile driver. As a result, the noise level associated with placing the logs and constructing the vegetated geogrid will probably be similar to what the eagles experienced during construction of the Upper Russel Road secondary levee immediately across the river in 2014, 2015 and 2016.

In the event of late fledging (after July 24), any site preparation or construction activity that needs to take place within the 660-foot buffer will be limited to daytime work hours ranging from two hours after sunrise to two hours before sunset to minimize impacts during usual eagle feeding times.

## Planting and Plant Maintenance

Hydroseeding and planting will take place outside of the breeding season.

## Conclusions

Construction during the bald eagle breeding season will be avoided to the extent possible. However, we need to balance bald eagle nest protection guidelines with protections for Endangered Species Act-listed salmon. Since we have already negotiated an extension of the in-water work window for salmonids (from August 15 to August 31), we may need to begin project construction at the tail-end of the bald eagle breeding season if eaglets have not fledged by July 24, assuming a 40-hour work week. Work within the 660-foot buffer will include the following avoidance and mitigation measures:

- Avoid construction within the 660-foot nest buffer during the breeding season unless fledging occurs after July 24;
- Use a side-grip vibratory pile driver to minimize noise and concussion during timber pile installation;
- Reduce construction impacts within the 660-foot buffer by limiting any work in the breeding season to daytime work hours ranging from two hours after sunrise to two hours before sunset;
- If the eagles are aggressively swooping at or attacking individuals on the ground, the work will be adjusted to minimize the disturbance causing this agitation;
- All personnel will be informed of the bald eagle nest location, and instructed to essentially ignore the birds' activity; the eagles are more likely to react and be disturbed if they are being watched;
- Employ a qualified wildlife biologist to monitor the nest, document nest use, eagle behavior, and timing of fledging, and communicate this information to the project owner.

## References

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines.

<http://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf>